

**ABSTRACT**

A packet mode (e.g. IP) communication service layer is provided on top of a standard mainstream cellular radio network. Conceptually, the communication layer comprises a pair of basic logical entities, an application bridge and a call processing server (CPS). The bridge and the CPS run packet mode communication service applications, which communicate with packet mode communication service application(s) in a mobile station MS over the IP connections provided by the radio network. The CPS is responsible for control plane management of communications. Embedded user-plane signaling is used for connecting call parties for a packet mode speech two-party (one-to-one) communication. Embedded signaling in the user-plane's bearer makes it unnecessary to reserve another bearer for the control plane's signaling, which saves network resources and allows to achieve a short connection setup time.